

ABSTRACT OF THE DISCLOSURE

Preferred embodiments of the invention include purification of DNA,
5 preferably plasmid DNA, by use of selective precipitation, preferably by
addition of compaction agents

Also included is a scaleable method for the liquid-phase separation of DNA
from RNA. RNA may also be recovered by fractional precipitation according
to the invention.

10 We have discovered that RNA, commonly the major contaminant in DNA
preparations, can be left in solution while valuable purified plasmid DNA is
directly precipitated. Endotoxin can also be kept to very low levels.

Additional aspects of the invention include mini-preps, preferably of plasmid
and chromosomal DNA to obtain sequenceable and restriction digestible DNA
15 in high yields in multiple simultaneous procedures.

Still further aspects disclose enhanced stripping of the compaction agent by a
stripping method comprising high salt addition and pH shift, and combinations
of these techniques.

Also disclosed is a method of assay in which a labeled probe is precipitated by
20 hybridizing it to a target, (e.g. chromosomal DNA, oligonucleotides,
Ribosomal RNA, tRNA), and thereafter precipitating the probe/target complex
with compaction agents and leaving in solution any unhybridized probe. For
example, chromosomal DNA, plasmid, ribosomal RNA, and oligonucleotides

can be recovered in excellent purity; by then heating the mixture of nucleic acids and probe(above their melting temperature if the hybridization site is buried within secondary structure) and thereafter precipitating the probe and the target, whereby the target can be detected. Convenient kits for easy
5 practice of the invention are also described..

RNA Abstract

Additionally, a new approach to the isolation of RNA from bacterial lysates employs selective precipitation by compaction agents, such as hexamine cobalt and
10 spermidine.